

REMARKS/ARGUMENTS

The instant application is a continuation of U.S. Patent Application Serial No. 10/076,687. In the parent application, claims 37-39, 43-51, 53-55, 57-61, 68, and 69 were rejected. The instant application is intended to continue the prosecution of these claims. These claims have been renumbered as claims 37-58.

These claims are believed to be allowable for the reasons set forth in the amendment filed on June 30, 2003.

The present invention relates to an electrically driven aircraft cabin ventilation and environmental control system comprising means for capturing ram air, means for creating a first flow of the ram air and a second flow of the ram air, electrically driven means for receiving the first flow of ram air and for creating a pressurized ram air flow, first means for cooling the pressurized ram air flow, which first cooling means receives the second ram air flow and uses the second ram air flow as a heat sink, second means for receiving the cooled pressurized ram air from the first cooling means and for cooling and removing moisture from the cooled pressurized ram air, which second means includes a reheater heat exchanger for cooling the cooled pressurized ram air from the first cooling means and a condenser heat exchanger for condensing water vapor contained in the cooled pressurized ram air and for further cooling the pressurized ram air, liquid from the condensed water vapor being separated in the condenser heat exchanger and being used to cool the second ram air flow, the air exiting the condenser being delivered to an opposite side of the reheater heat exchanger to be warmed, expansion means for receiving the cooled ram air from the opposite side of the reheater heat exchanger and for expanding the cooled ram air, and means for delivering said cooled pressurized air from the expansion means to the cabin, which delivering means comprises means for passing air exiting the expansion means through said condenser prior to delivering the air to said cabin.

The present invention also relates to a method for delivering conditioned air to an aircraft cabin comprising the steps of capturing ram air, creating a first flow of ram air and a second flow of ram air from the captured ram air, delivering the first flow of ram air to an electrically driven compressor and pressurizing the ram air in the compressor, providing first means for cooling the pressurized ram air, delivering the second ram air flow to the first cooling means and using the second ram air flow as a heat sink, providing second means for cooling the pressurized ram air and for removing moisture from the pressurized ram air, delivering the cooled pressurized ram

air from the first cooling means to the second cooling means, removing moisture from the cooled pressurized ram air in the second means by condensing the moisture out of said cooled pressurized ram air and separating a liquid formed by the condensed moisture, using the separated liquid to cool the second flow of ram air, providing expansion means and delivering the cooled ram air from the second cooling and moisture removing means to an inlet of the expansion means, and delivering the cooled pressurized air from an outlet of the expansion means to the cabin.

The Williams '103 patent relates to a ventilation and environment control system which divides ram air into two flows with a first flow being passed to a motor driven compressor and a second flow being passed to a heat exchanger for use as a heat sink prior to being delivered to the ambient. The first flow of ram air exiting the compressor passes through the heat exchanger and then through a turbine prior to delivery to a cabin. Eventually, the ram air is dumped to ambient via a cabin air outflow valve. The compressor is located on a first shaft with a motor. The turbine is located on a second shaft with a motor/generator. The motor/generator and the motor are connected to each other via a system motor controller.

The Brunskill patent is cited for its teachings relating to passing a flow of air through a secondary heat exchanger, a reheater heat exchanger, a condenser heat exchanger, a water separator, and a turbine before being supplied to a cabin. The source of the air however is engine bleed air rather than ram air. Brunskill also teaches mixing a portion of the engine bleed air with the air which has been cooled and expanded prior to delivery to a cabin.

As can be seen from the foregoing discussion, neither of the patents by itself teaches the system and method of the present invention. It is submitted that when combined the references do not teach or suggest the subject matter of claims independent claims 37, 50, 51, and 52 for the following reasons.

Claim 37 is allowable because neither of the cited and applied references teaches or suggests separating a liquid, namely water, in the condenser heat exchanger and then using the liquid to cool the second flow of ram air prior to its use as a heat sink.

Claim 39 is allowable because neither of the cited and applied references teaches or suggests means for precooling the second ram air flow prior to the second ram air flow being delivered to the first cooling means.

Claim 50 is allowable because neither of the cited and applied references teaches or suggests means for removing a portion of the pressurized air exiting the electrically driven means upstream of the first cooling means to provide temperature modulation in an air cycle subsystem and air distribution system.

Claim 51 is allowable because neither of the cited and applied references teaches or suggests a spray cooler for cooling the second ram air flow prior to delivering the second ram air flow to the first cooling means and means for delivering water to the spray cooler from said second cooling means.

Claim 52 is allowable because neither of the cited and applied references teaches or suggests the steps of removing moisture from the cooled pressurized ram air in the second means by condensing said moisture out of the cooled pressurized ram air and separating a liquid formed by the condensed moisture and using the separated liquid to cool the second flow of ram air prior to its delivery to the first cooling means.

The remaining claims depend from one of the aforementioned independent claims. It is submitted that these claims are allowable for the same reasons as their parent claims as well as on their own accord.

For the foregoing reasons, the instant application is believed to be in condition for allowance. Such allowance is respectfully solicited.

Should the Examiner believe an additional amendment is needed to place the case in condition for allowance, he/she is hereby invited to contact Applicants' attorney at the telephone number listed below.

A check in the amount of \$954.00 is enclosed herewith to cover the cost of the extra claims, the basic filing fee, and the Assignment recordal fee. Should the Commissioner

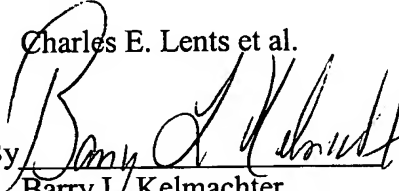
Prel. Amdt. dated Sept. 26, 2003

determine that an additional fee is due, he is hereby authorized to charge said fee to Deposit
Account No. 02-0184.

Respectfully submitted,

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Date: September 26, 2003

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail in an envelope addressed to:
"Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on September 26, 2003.


Nicole Motzer

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